

Friday, 5/25/2007 8:26:58 AM  
Kim Johnston

# Process Sheet

Customer	: CU-DAR001 Dart Helicopters Services	Drawing Name	: FWD TUBE ASSEMBLY
Job Number	: 32631	Part Number	: D3391011
Estimate Number	: 11444	Drawing Number	: D3391 REV 16
P.O. Number	:	Project Number	: N/A
This Issue	: 5/25/2007 S.O. No. :	Drawing Revision	: 16
Prsht Rev.	: NC	Material	:
First Issue	: 11 Type : MACHINED PARTS	Due Date	: 6/20/2007
Previous Run	: 32630	Qty:	1 Um: Each
Written By	:		
Checked & Approved By	: <u>ADD 07.05.28</u>		
Comment	: Est. A 05.09.13 New issue KJ/JLM		
	: Est. B 06.02.09 Dwg rev.D EC		
	: est C 07.03.13 revF dwg ec		

SCRAP

## Additional Product

Job Number:



Seq. #:	Machine Or Operation:	Description :
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1.0	D6013047	SKIDTUBE MAT'L
-----	----------	----------------



Comment: Qty.: 1.0000 Each(s)/Unit Total : 1.0000 Each(s)

SKIDTUBE MAT'L

Pick:

Qty	Part Number	Description	Batch
1	D6013-047	Extrusion	B260547

Batch

B260547

DP 7-7-13

2.0	LANDING GEAR 1	LANDING GEAR RESOURCE 1
-----	----------------	-------------------------



Comment: LANDING GEAR RESOURCE 1

Cut extrusion to 46.52 +0.010 -0.020

DP 7-7-13

3.0	BENDING	BENDING MACHINE
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Comment: No bender

Bend as per Dwg D3391

DP 7-7-13

4.0	QC5	INSPECT WORK TO CURRENT STEP
-----	-----	------------------------------



Comment: INSPECT WORK TO CURRENT STEP

PTU

5.0	HAAS1	HAAS CNC VERTICAL MACHINING #1
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Comment: HAAS CNC VERTICAL MACHINING #1

1-Machine as per Folio FA590 Rev. — & Dwg D3391 Rev. —

Identify as D3391-1

2-Deburr

SCRAP

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: D3391-011 PAR #: N/A Fault Category: Prod / Skid / b/c NCR: Yes No DQA: D Date: 08/07/16  
D412-742 QA: N/C Closed: D Date: 08/07/16

NCR: 32631		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			
08/07/16	3.0	The bench resulted in a height of 7.155", 0.15" over the max tolerance. R.C.	<i>[Signature]</i> 08/07/16	Eng decision is Recommend scrap b/c out of tolerance. Tolerance has already <del>PL</del> been updated before 08-07-16	<i>[Signature]</i> 08-07-16 08/07/16	<i>[Signature]</i> 08-7-16	<i>[Signature]</i> 08/07/16	<i>[Signature]</i> 08/07/16

NOTE: Date & initial all entries

## Process Sheet

Customer: CU-DAR001 Dart Helicopters Services

Drawing Name: FWD TUBE ASSEMBLY

Job Number: 32631

Part Number: D3391011

Job Number:



Seq. #:

Machine Or Operation:

Description :

6.0

QC2

INSPECT PARTS AS THEY COME OFF MACHINE



Comment: INSPECT PARTS AS THEY COME OFF MACHINE

7.0

QC8

SECOND CHECK



Comment: SECOND CHECK

8.0

LANDING GEAR 1

LANDING GEAR RESOURCE 1



Comment: LANDING GEAR RESOURCE 1

1-Drill and c'sink float bag holes as per Dwg D3391 using DT8798(Do not open tow cap holes to finish size)  
(DRILL ALL HOLES)

2-Drill Remaining two holes for tow cap using DT 8819 Locating off of .1875" holes drilled in previous step

3-Open tow cap holes to .208" as per Dwg D3391

4-Open Tow Ring hole to .640" as per Dwg D3391

5-Drill wearplate holes as per Dwg D3391 Using Dt8217 (1φ0.297)

5.5 C-BORE HOLE WEARPLATE HOLE PER DWG-3391 (2 PLACES ONLY)

6--Deburr

Scrap

Turn over

9.0

HAND FINISHING1

HAND FINISHING RESOURCE #1



Comment: HAND FINISHING RESOURCE #1

Acid etch and Alodine as per QSI 005 4.1

→ TURN OVER

10.0

POWDER COATING

POWDER COATING



Comment: POWDER COATING

Powder Coat White/Gloss (Ref: 4.3.5.1) as per QSI 005 4.3

11.0

QC3

INSPECT POWDER COAT/CHEMICAL CONVERSION



Comment: INSPECT POWDER COAT/CHEMICAL CONVERSION

Dart Aerospace Ltd

W/O:		WORK ORDER CHANGES						
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector	
<del>9+0</del> 07.10.30	9+0 10	AFTER ALODINE, QTY(9) D3070-4200 SPACER <u>B</u> INTO FLOAT BAG HOLES SEAL WITH MAGNOROND 0398 <u>B</u> GRIND FLUSH, 9 PLACES (SEE DWG 3391) PERMANENT CHANGE	<i>PH</i>	07.10.30	1	<i>PH</i> 07.10.30		

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_  
 QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

Date: Friday, 5/25/2007 8:26:58 AM  
User: Kim Johnston

## Process Sheet

Customer: CU-DAR001 Dart Helicopters Services

Drawing Name: FWD TUBE ASSEMBLY

Job Number: 32631

Part Number: D3391011

Job Number:



Seq. #:

Machine Or Operation:

Description :

12.0

D3401041

Tow Cap Assembly



Comment: Qty.: 1.0000 Each(s)/Unit Total : 1.0000 Each(s)  
Tow Cap Assembly

Pick:

Qty	Part Number	Description	Batch
1	D3401-041	Tow Cap	

13.0

D356413

WEARSHOE



Comment: Qty.: 1.0000 Each(s)/Unit Total : 1.0000 Each(s)  
WEARSHOE

14.0

D356613

GASKET



Comment: Qty.: 1.0000 Each(s)/Unit Total : 1.0000 Each(s)  
GASKET

15.0

AN3C4A

BOLT



Comment: Qty.: 10.0000 Each(s)/Unit Total : 10.0000 Each(s)  
Bolt

Pick:

Qty	Part Number	Description	Batch
4	AN3C4A	Bolt	

16.0

NAS1515H3L

WASHER



Comment: Qty.: 4.0000 Each(s)/Unit Total : 4.0000 Each(s)  
Washer

Pick:

Qty	Part Number	Description	Batch
4	<del>NAS1515H3L</del>	Washer	

17.0

AN960C10L

washer



Comment: Qty.: 10.0000 Each(s)/Unit Total : 10.0000 Each(s)  
Washer

Pick:

Qty	Part Number	Description	Batch
4	AN960C10L	Washer	

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

Date: Friday, 5/25/2007 8:26:58 AM  
User: Kim Johnston

## Process Sheet

Customer: CU-DAR001 Dart Helicopters Services

Drawing Name: FWD TUBE ASSEMBLY

Job Number: 32631

Part Number: D3391011

Job Number:



Seq. #:

Machine Or Operation:

Description :

18.0

NAS1330C3KB166

INSERT



Comment: Qty.: 30.0000 Each(s)/Unit Total: 30.0000 Each(s)

Rivnut

Pick:

Qty

Part Number

Description

Batch

24

NAS1330C3KB166

Insert

QTY

10

AEIS-1032-225

B

2

AEIS-1032-130

B

INSTALL INTO WEARPLATE  
HOLES PER DWG-3391

19.0

SMALL FAB 1

SMALL & MEDIUM FAB RESOURCE 1



Comment: SMALL & MEDIUM FAB RESOURCE 1

Install inserts and Tow Cap as per Dwg D3391

Identify as D3391-021

20.0

QC5

INSPECT WORK TO CURRENT STEP



Comment: INSPI

Inspe

21.0

PACKAG

PACKAGING RESOURCE #1



Comment: PACI

Iden

Local

22.0

QC21

FINAL INSPECTION/W/O RELEASE



Comment: FINA

Job Completion



Inf 08-07-22

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

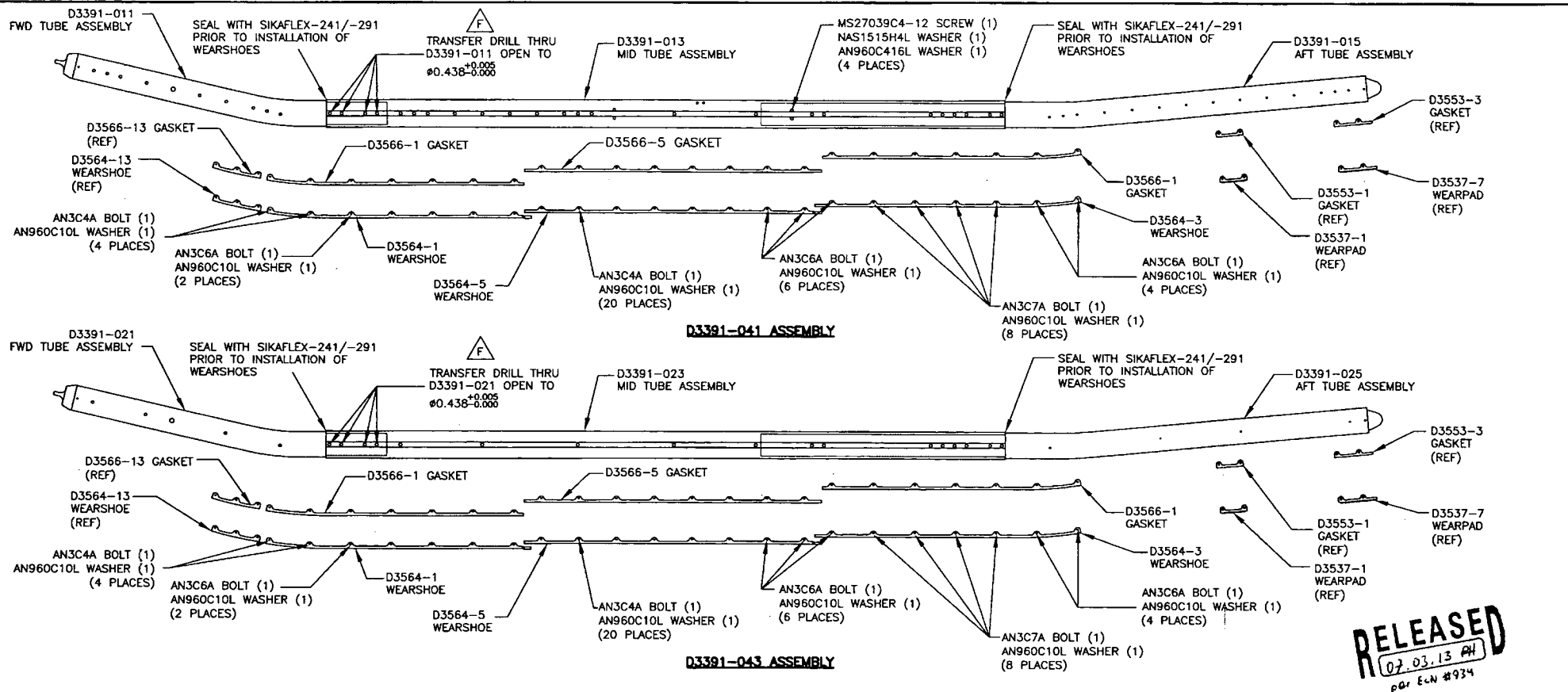
QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries







#### D3391-041/-043 FLOAT SKIDTUBE ASSEMBLY PARTS LIST

QTY -041	QTY -043	PART NUMBER	DESCRIPTION
X	X	D3391-041	FLOAT SKIDTUBE ASSEMBLY
		D3391-043	FLOAT SKIDTUBE ASSEMBLY
1		D3391-011	FWD TUBE ASSEMBLY
1		D3391-013	MID TUBE ASSEMBLY
1		D3391-015	AFT TUBE ASSEMBLY
1		D3391-021	FWD TUBE ASSEMBLY
1		D3391-023	MID TUBE ASSEMBLY
1		D3391-025	AFT TUBE ASSEMBLY
1	1	D3564-1	WEARSHOE
1	1	D3564-3	WEARSHOE
1	1	D3564-5	WEARSHOE
2	2	D3566-1	GASKET
1	1	D3566-5	GASKET
24	24	AN3C4A	BOLT
12	12	AN3C6A	BOLT
8	8	AN3C7A	BOLT
44	44	AN960C10L	WASHER
4	4	MS27039C4-12	SCREW
4	4	NAS1515H4L	WASHER
4	4	AN960C416L	WASHER

#### GENERAL NOTES

- 1) ALL DIMENSIONS ARE IN INCHES
- 2) TOLERANCES ARE PER DART QSI 018 UNLESS OTHERWISE NOTED
- 3) FINISH: ACID ETCH AND ALODINE PER DART QSI 005 4.1  
POWDER COAT WHITE (4.3.5.1) PER DART QSI 005 4.3
- 4) SPRAY INSIDE OF TUBE WITH A COAT OF LPS LABORATORIES "LPS-3" AFTER FINISH AND AFTER INSTALLATION OF INSERTS. COAT ALL EXPOSED FASTENERS WITH LPS LABORATORIES "LPS PROCYON" AFTER FINAL ASSEMBLY, CLEAN EXCESS OFF POWDER COATING WITH MEK DEGREASER.
- 5) USE DART DRILL TEMPLATE DT8217 TO LOCATE AND DRILL 'E' SIZE HOLES (0.250-0.257) FOR WEARSHOE INSERTS. C'SINK 0.391/0.425 x 100' AS APPLICABLE AND INSTALL INSERTS EXCEPT WHERE INDICATED.

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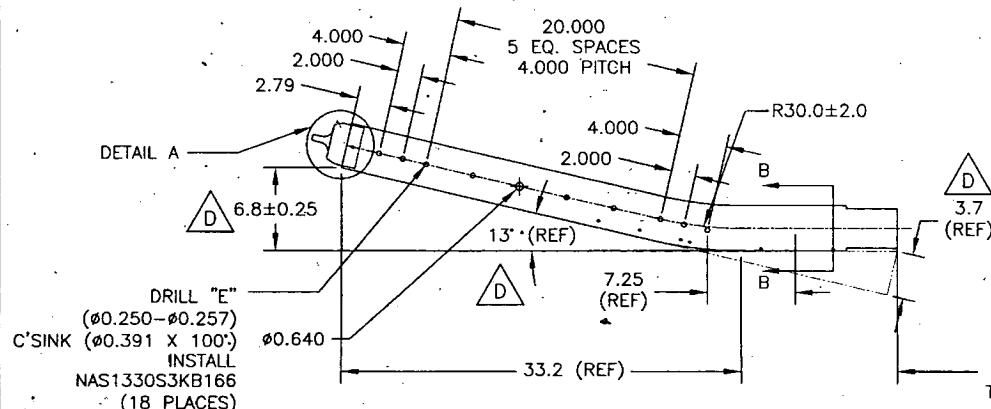
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DESIGN	07.01.18	ADD SS WEARSHOE, GASKET REMOVE FWD SADDLE HOLE -011/-021
DRAWN BY	PH	
CHECKED	PH	
APPROVED	PH	
DATE	07.01.18	
DART	DART AEROSPACE USA, INC.	
DRAWING NO.	D3391	REV. F
TITLE	412 FLOAT SKIDTUBE	SHEET 1 OF 5
SCALE	NTS	

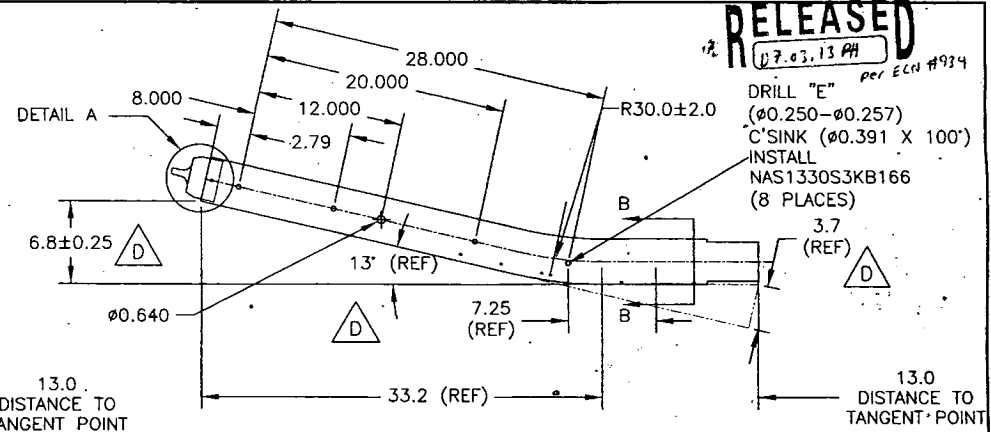
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SUBJECT TO AMENDMENT  
WITHOUT NOTICE  
WORK ORDER  
NO. 22631  
SHO COPY  
RETURN TO  
ENGINEERING



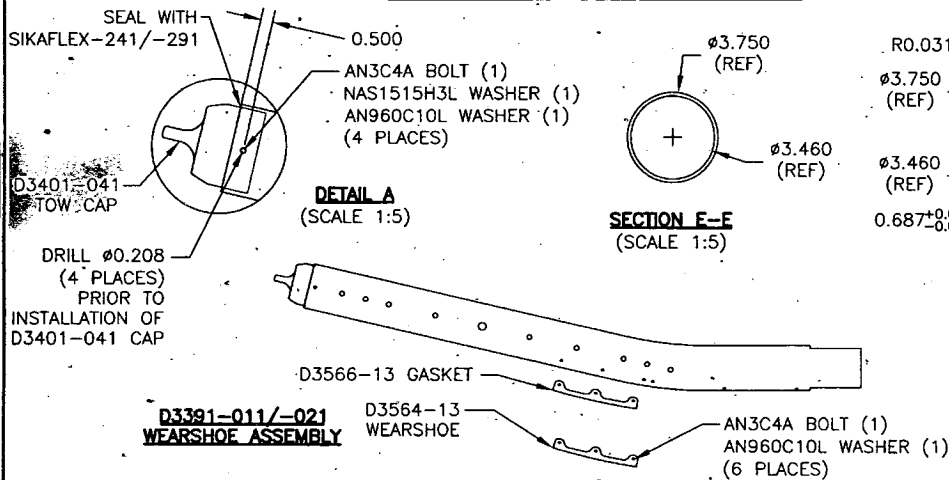
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 07.03.13 PH  
 per ECH #934



**D3391-011 ASSEMBLY AND BENDING DETAIL**



**D3391-021 ASSEMBLY AND BENDING DETAIL**

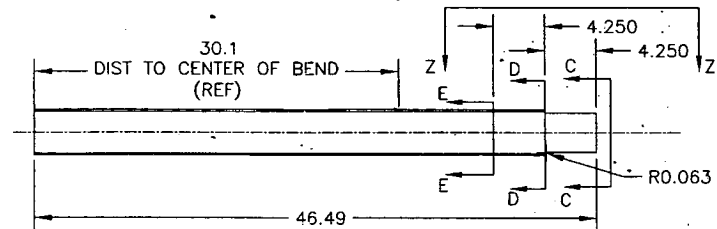


**D3391-011/-021 FWD TUBE ASSEMBLY PARTS LIST**

QTY - 011	QTY - 021	PART NUMBER	DESCRIPTION
X	X	D3391-011	FWD TUBE ASSEMBLY
		D3391-021	FWD TUBE ASSEMBLY
1	1	D6013-047	FWD TUBE
1	1	D3401-041	TOW CAP
1	1	D3564-13	WEARSHOE
1	1	D3566-13	GASKET
10	10	AN3C4A	BOLT
4	4	NAS1515H3L	WASHER
10	10	AN960C10L	WASHER
30	20	NAS1330S3KB166	INSERT (OR NAS1330C3KB166)

5  
 DRILL "E"  
 (Ø0.250-Ø0.257)  
 C'SINK (Ø0.391 X 100')  
 INSTALL  
 NAS1330S3KB166  
 (12 PLACES)

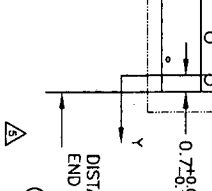
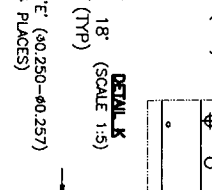
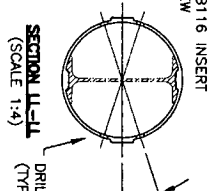
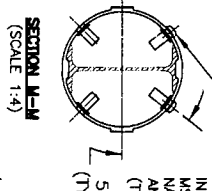
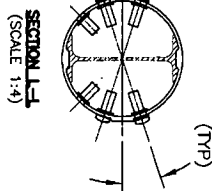
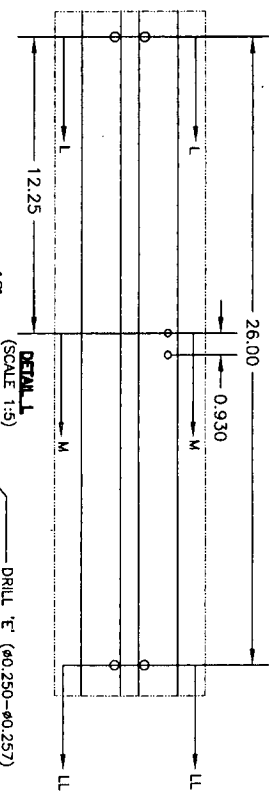
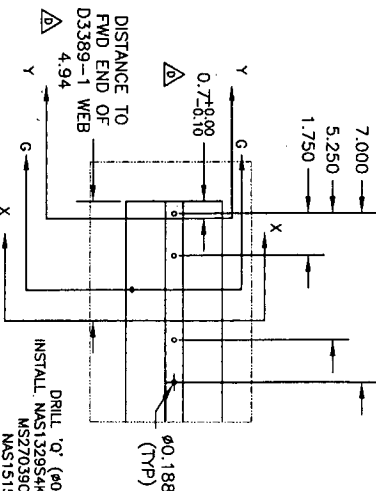
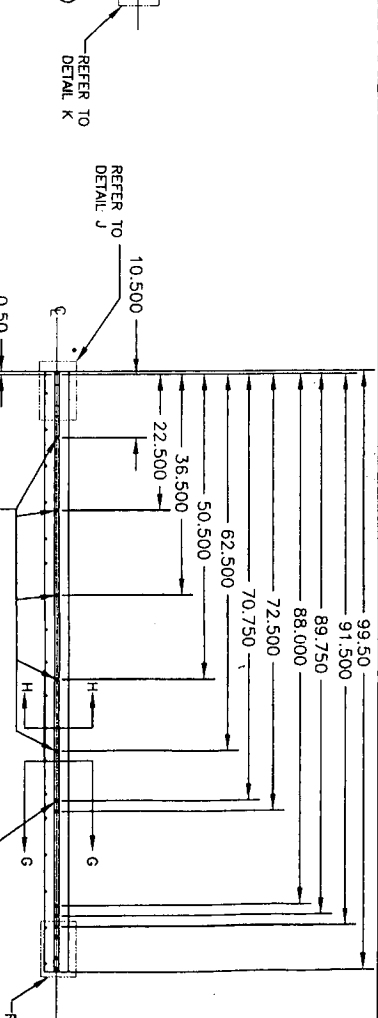
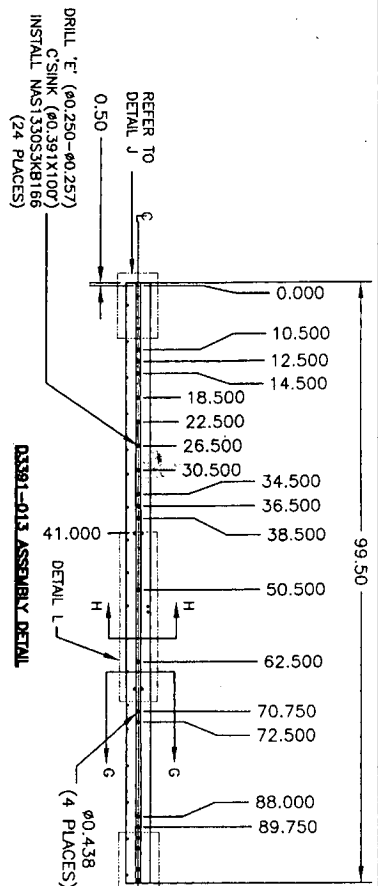
**SECTION B-B**  
 (SCALE 1:5)



**D3391-1 DRILLING AND CUTTING DETAIL**  
 (MAKE FROM D6013-047 SKIDTUBE MATERIAL)

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DATE 07.01.18		TITLE 412 FLOAT SKIDTUBE		SCALE 1:10	

WORK ORDER  
 NO. 22631  
 SUBJECT TO AMENDMENT  
 WITHOUT NOTICE  
 ENGINEERING  
 RETURN TO  
 SHOP COPY



QTY - 013	QTY - 023	PART NUMBER	DESCRIPTION
X	X	D3391-013	MID TUBE ASSEMBLY
X	X	D3391-023	MID TUBE ASSEMBLY
1	1	D2500-1-100	EXTRUSION
1	1	D3389-1	WEB
24	20	NAS1330S3KB116	INSERT (OR NAS1330C3KB116)
24	10	NAS1330S3KB166	INSERT (OR NAS1330C3KB166)
4	4	NAS1329S4KB140	INSERT (OR NAS1329C3KB140)
4	4	NAS1515H4L	WASHER
4	4	AN960C416L	WASHER
4	4	AN960C416L	WASHER
4	4	MS27039C4-08	SCREW
4	4	MS27039C4-08	SCREW

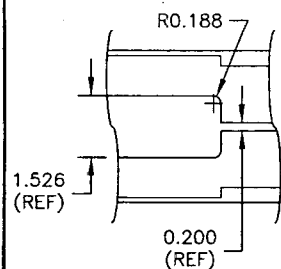
- D3391-013/-023 MID TUBE ASSEMBLY**
- 1) MATERIAL: MAKE FROM D2500-1-100 EXTRUSION
  - 2) INSTALL D3389-1 WEB TO OUTER TUBE USING SWALEX-241/-291 PER OSI 015

WORK ORDER NO. 32631  
SUBJECT TO AMENDMENT  
UNCONTROLLED COPY  
FROM TOP AND BOTTOM  
TO 3.610  
REMOVE 0.030  
FROM TOP AND BOTTOM  
TO 3.800  
(0.7 FROM BOTH ENDS)

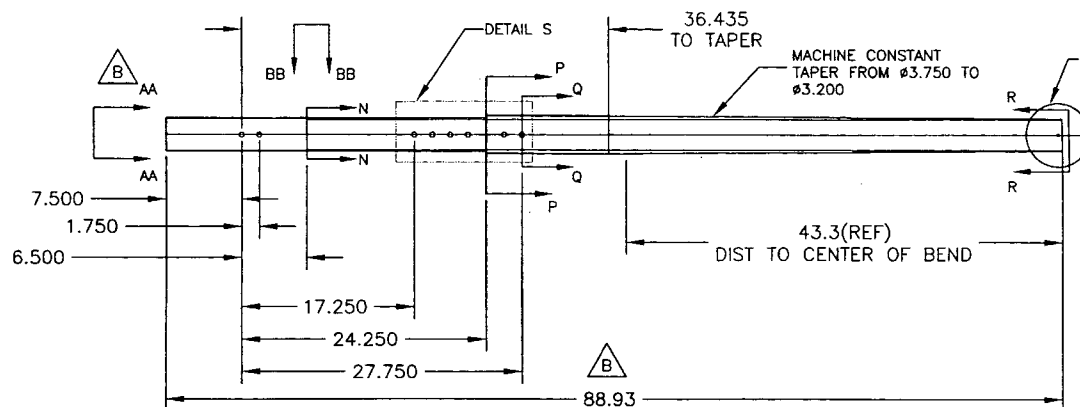
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DESIGN	PH	DRAWN BY	PH	CHECKED	PH	APPROVED	PH
DATE				07.01.18			
TITLE				412 FLOAT SKIDTUBE			
DRAWING NO.				D3391			
SHEET 3 OF 5				SCALE			
REV. F				120			

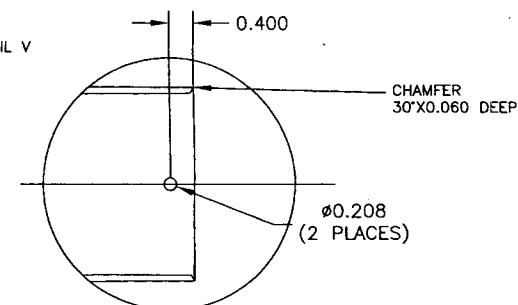
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03.01.13 RH  
001 ECU 0934



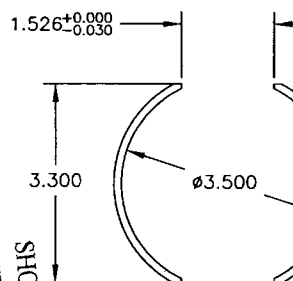
VIEW BB-BB  
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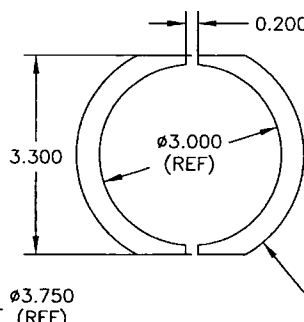
D3391-3 AFT DRILLING AND CUTTING DETAIL  
(MAKE FROM D6014-090 SKIDTUBE MATERIAL)



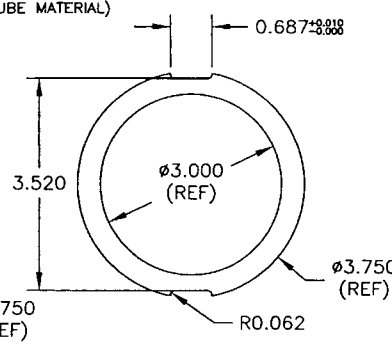
DETAIL V  
(SCALE 1:2)



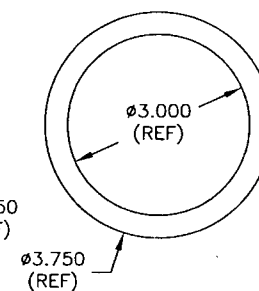
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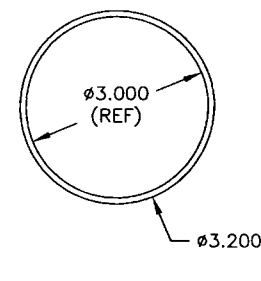
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(SCALE 1:2)



SECTION P-P  
(SCALE 1:2)

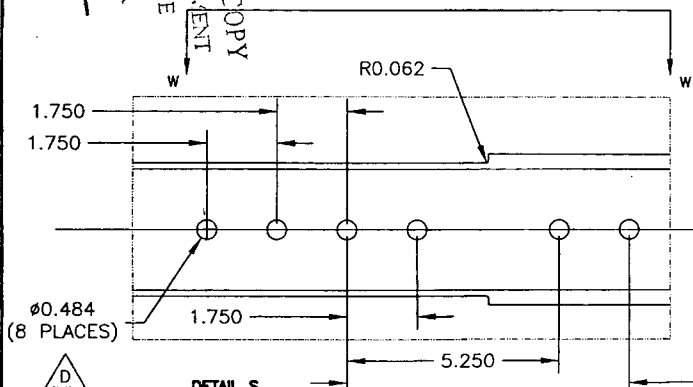


SECTION Q-Q  
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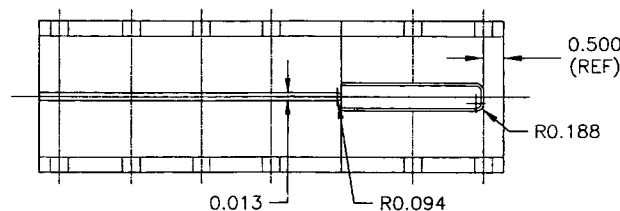


SECTION R-R  
(SCALE 1:2)

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SUBJECT TO AGENCY  
WITHOUT NOTICE  
ENGINEERING  
RETURN TO  
SHOP COPY



DETAIL S  
(SCALE 1:3)



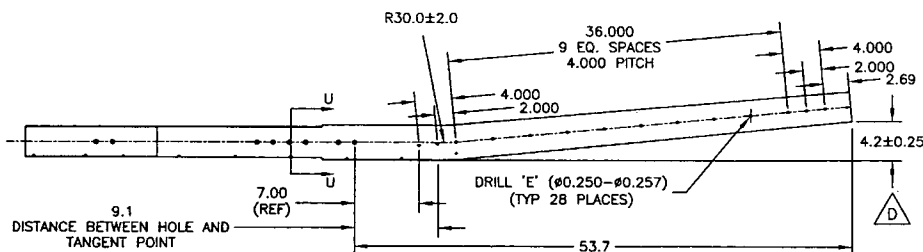
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RELEASED  
07-03-13 AH  
per ECU #934

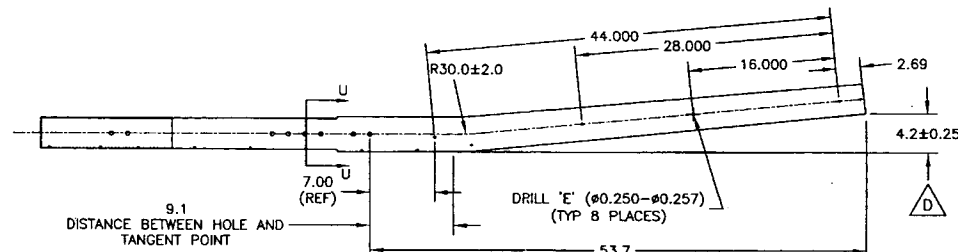
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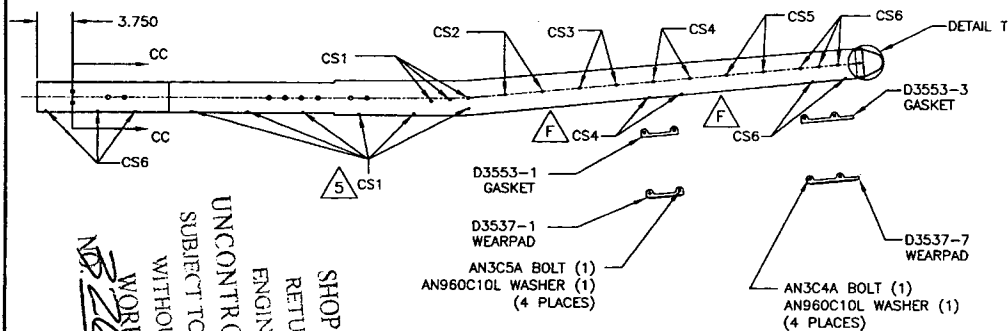
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CHECKED H	APPROVED H		
DATE 07.01.18	DRAWING NO. D3391	TITLE 412 FLOAT SKIDTUBE	SCALE 1:12



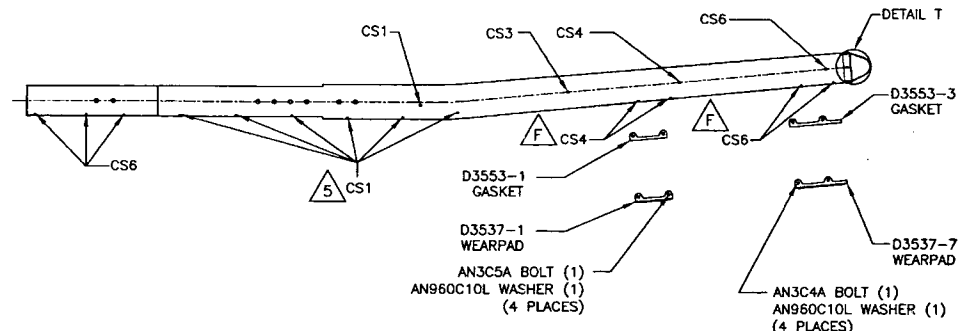
**D3391-015 BENDING AND ASSEMBLY DETAIL**



**D3391-025 BENDING AND ASSEMBLY DETAIL**



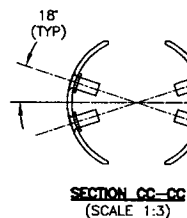
**D3391-015 INSERT AND WEARPAD INSTALLATION DETAIL (SEE TABLE)**



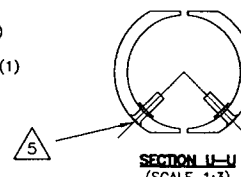
**D3391-025 INSERT AND WEARPAD INSTALLATION DETAIL (SEE TABLE)**

**D3391-015/-025 AFT TUBE ASSEMBLY PARTS LIST**

QTY - 015	QTY - 025	PART NUMBER	DESCRIPTION
X	X	D3391-015	AFT TUBE ASSEMBLY
		D3391-025	AFT TUBE ASSEMBLY
1	1	D6014-090	AFT TUBE
1	1	D2646	AFT CAP
1	1	D3537-1	WEARPAD
1	1	D3537-7	WEARPAD
1	1	D3553-1	GASKET
1	1	D3553-3	GASKET
18	14	NAS1330S3KB366	INSERT (OR AES10KB366)
4	2	NAS1330S3KB316	INSERT (OR NAS1330C3KB316)
8	6	NAS1330S3KB266	INSERT (OR NAS1330C3KB266)
4		NAS1330S3KB216	INSERT (OR NAS1330C3KB216)
16	12	NAS1330S3KB166	INSERT (OR NAS1330C3KB166)
4		NAS1330S4KB151	INSERT (OR NAS1330C4KB151)
6	6	AN3C4A	BOLT
4	4	AN3C5A	BOLT
2	2	NAS1515H3L	WASHER
10	10	AN960C10L	WASHER



DRILL 'Q' (Ø0.332-Ø0.338)  
C'SINK (Ø0.529X100")  
NAS1330S4KB151 INSERT (1)  
(4 PLACES)



AN3C4A BOLT (1)  
NAS1515H3L WASHER (1)  
AN960C10L WASHER (1)  
(2 PLACES)  
DETAIL T (SCALE 1:3)  
D2646 AFT CAP  
SEAL WITH SIKAFLEX-241/-291

C'SINK AND INSTALL NAS1330S3KBXXX IN HOLES MARKED CS1-CS6 AS FOLLOWS

HOLES MARKED	QTY D3391-015	QTY D3391-025	C'SINK	P/N
CS1	18	14	Ø0.425	NAS1330S3KB366
CS2	4		Ø0.391	NAS1330S3KB366
CS3	4	2	Ø0.391	NAS1330S3KB316
CS4	8	6	Ø0.391	NAS1330S3KB266
CS5	4		Ø0.391	NAS1330S3KB216
CS6	16	12	Ø0.391	NAS1330S3KB166

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DESIGN PH	DRAWN BY BH	<b>DART</b> DART AEROSPACE USA, INC. FORT WALTON, FLA.
CHECKED H	APPROVED H	DRAWING NO. D3391
DATE 07.01.18	TITLE 412 FLOAT SKIDTUBE	REV. F SHEET 5 OF 5 SCALE 1:12

RELEASED  
07.03.13 RH  
per ECN #934

